DETAILED ACTION

Response to Arguments

1. **Applicant's arguments, see page 10, filed 01/19/2010, with respect to the Drawings have been fully considered and are persuasive.** The objection of the Drawings has been withdrawn.

2. **Applicant's arguments, see page 10, filed 01/19/2010, with respect to claim 5 have been fully considered and are persuasive.** The objection of claims 5 has been withdrawn.

3. **Applicant's arguments filed 01/19/2010 have been fully considered but they are not persuasive.**

On page 11 of the remarks, in regard to claim 11, the applicant submits that the reference Tagore-Brage does not teach or suggest *"wherein, the Ethernet service signals at network side received by transmitting/receiving module are duplicated by the space-division cross module into two copies, wherein one copy is transmitted to the local service processing part and the other copy is returned to the network side for continuous transmission"*. The applicant alleges that paragraph 0024 of Tagore-Brage simply describers that a copy of the packet is stored in the device. In light of these arguments, the applicant contends that the claim is allowable.

The examiner respectfully disagrees. First, the examiner would like to kindly direct the applicant's attention to the limitation *"the other copy is returned to the network side for continuous transmission*". The examiner interprets this limitation to mean that the packet is forwarded to a subsequent device on the WDM network, after a copy is

retained for the user (which is also addressed below). The examiner bases this interpretation on the packet rings shown in Figures 10 and 11 of the applicant's specification.

In addition, the examiner would like to kindly direct the applicant to paragraphs 0021-0024 of Tagore-Brage, which need to be read in combination, in order to properly convey the teachings of the reference:

[0021] a first number of times:

> *[0022] forward, at least substantially simultaneously, at least part of each of the data packets and pertaining receiving device information to a next device along the interconnecting means,*
>
> *[0023] receive, at least substantially simultaneously and from the interconnecting means, the at least part of the selected data packets and the pertaining receiving device information, and*
>
> *[0024] determine, at least substantially simultaneously in each device having received at least part of a data packet, on the basis of the pertaining receiving device information, whether the at least part of the data packet is intended for the device and, if so, storing a copy of the at least part of the data packet in the device*

Paragraph 0021 of Tagore-Brage implies that the indented paragraphs 0022-0024 are to be performed a certain number of times, where the number is greater than

one. Therefore, the steps cited in paragraph 0024 need to be taken in context as the last step in a looping algorithm. The step performed in paragraph 0022 forwards packet data to a next node. In paragraphs 0023 and 0024, the next node receives the packet data and performs packet processing. In addition, at this point in the logical algorithm, the process reverts back to paragraph 0022 (since the condition from paragraph 0021 is satisfied). In this subsequent permutation of the loop, the next node from the first permutation becomes the current node. Therefore, after the copy step from paragraph 0024, the packet is then forwarded to another node over the network according to paragraph 0022 and the process continues until the condition from paragraph 0021 is no longer valid.

Therefore, the packet received at the node is copied and forwarded, where the copy is stored before it is transferred to the user device. This is disclosed in paragraph 0163- 0166, where it is explained that data packets are actually addressed to external devices but are sent to nodes, or switches within a packet ring. Based on the reasoning presented, it seems clear to the examiner that Tagore-Brage does teach the contended limitation in claim 11.

On pages 11, in regard to claims 15 and 18, the applicant submits that Tagore-Brage fails to teach or suggest all the limitations of these claims. The applicant states that while the claims are different in scope from claim 11, they recite a similar limitation to the one challenged in claim 11. In light of these arguments, the applicant contends that the claims are allowable.

The examiner respectfully disagrees. The examiner kindly directs the applicant to the reasoning listed above.

On page 12, in regard to claims 12, 16, and 20, the applicant submits that since Tagore-Brage fails to teach each and every limitation of the associated independent claims, then dependent claims are also allowable.

The examiner respectfully disagrees. The examiner kindly directs the applicant to the reasoning listed above.

On pages 12 and 13 of the remarks, in regard to claims 1-7, 14, 17, and 21, the applicant submits that the examiner has failed to establish a prima facie case of obviousness for these claims, and since Tagore-Brage fails to teach each and every limitation of the associated independent claims, then dependent claims are also allowable.

The examiner respectfully disagrees. In regard to the Tagore-Brage deficiencies, examiner kindly directs the applicant to the reasoning listed above. In response to applicant's argument that Chapman is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Chapman and Tagore-Brage both pertain to space-division switching within a network, and since the applicants claimed invention also is directed to toward an invention where space-division operations are performed on packets that are received, it would have

been obvious to one of ordinary skill in the art that the two references are combinable and render the relevant claims to be an obvious combination of the two references.

On pages 13 and 14 of the remarks, in regard to claims 8-10, the applicant submits that the examiner has failed to establish a prima facie case of obviousness for these claims, and since Tagore-Brage fails to teach each and every limitation of the associated independent claims, then dependent claims are also allowable.

The examiner respectfully disagrees. In regard to the Tagore-Brage deficiencies, examiner kindly directs the applicant to the reasoning listed above. In response to applicant's argument that Chapman and Suemura are nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, the combination of Chapman and Tagore-Brage has been established in the rejection and the argument above. In the case of Tagore-Brage and Suemura, both pertain to space-division switching within a network. In addition, Suemura builds on the concept of space-division switching within a network such as to provide a means for MPLS transmission, which pertains to the concepts of claims 8-10. Based on this analysis, and their corresponding structures, it would have been obvious to one of ordinary skill in the art that the two references are combinable and render the relevant claims to be an obvious combination of the two references.

On pages 14 and 15 of the remarks, in regard to claims 13 and 19, the applicant submits that the examiner has failed to establish a prima facie case of obviousness for these claims, and since Tagore-Brage fails to teach each and every limitation of the associated independent claims, then dependent claims are also allowable.

The examiner respectfully disagrees. In regard to the Tagore-Brage deficiencies, examiner kindly directs the applicant to the reasoning listed above. In response to applicant's argument that Chapman and Suemura are nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, both references pertain to space-division switching within a network. In addition, Suemura builds on the concept of space-division switching within a network such as to provide a means for MPLS transmission, which pertains to the concepts of claims 8-10. Based on this analysis, and their corresponding structures, it would have been obvious to one of ordinary skill in the art that the two references are combinable and render the relevant claims to be an obvious combination of the two references.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 11, 12, 15, 16, 18, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Tagore-Brage et al. (US PG Pub 2002/0075886).

6. **As per claim 11,** Tagore-Brage et al. teach a device for transmitting Ethernet service signals in a Wavelength Division Multiplexing (WDM) network, comprising:

transmitting/receiving modules, which connect to transmission channels in the WDM network [Tagore-Brage, paragraph 0032, “Normally, the data will conform to a standard, such as the Ethernet standard”, Each switch operates using the Ethernet protocol.];

a local service processing part, which connects to a user side [Tagore-Brage, fig. 1, elements 26 & 28, paragraph 0166, “The external communication is illustrated as inward and outward facing arrows 26 and 28 from each device 14, 16, 18 and 20”, The external communications are for the user side.]; and

a space-division cross module, connected with the transmitting/receiving module and the local service processing part, and is used for performing a space-division cross operation upon the Ethernet service signals and duplicating the Ethernet service signals [Tagore-Brage, paragraph 0004, “The space division switch allows the designer of the

switch to reduce the number of total cross-points required in implementing a crossbar matrix switch. However, the head of line blocking may be further increased since more cross-points will be shared", Each switch has a space-division cross switch.];

wherein, the Ethernet service signals at network side received by transmitting/receiving module are duplicated by the space-division cross module into two copies, wherein one copy is transmitted to the local service processing part and the other copy is returned to the network side for continuous transmission [Tagore-Brage, paragraph 0024, "determine, at least substantially simultaneously in each device having received at least part of a data packet, on the basis of the pertaining receiving device information, whether the at least part of the data packet is intended for the device and, if so, storing a copy of the at least part of the data packet in the device", A copy of the packet is stored locally at the device.].

7. **As per claim 12,** Tagore-Brage et al. teach the device according to claim 11, wherein, the local service processing part comprises a Media Access Control (MAC) layer and a physical layer, wherein, the MAC layer connects to the space-division cross module and the physical layer, selects the services that belong to the present station and to receive according to MAC layer labels, and discards other services [Tagore-Brage, Paragraph 0162, "The LU-engine comprises a table or other data storage mapping external receiver addresses (such as MAC addresses or IP addresses) to internal receiving device identities--the devices via which the data packet may, in fact, reach its destination", A table of MAC addresses stores the units (or services) that are allowed to communicate.].

8. **As per claim 15,** Tagore-Brage et al. teach a device for processing Ethernet service signals in a Wavelength Division Multiplexing (WDM) network, comprising:

a transmitting/receiving module, which connects to transmission channels of the WDM network [Tagore-Brage, paragraph 0032, "Normally, the data will conform to a standard, such as the Ethernet standard", Each switch operates using the Ethernet protocol.];

a Media Access Control (MAC) layer that connects a user side [Tagore-Brage, paragraph 0033, "the communication will conform to a standard, and e.g. a MAC may be present at the port in order to define and conform to this standard. The port may be adapted to communicate on any type of communication medium, such as twisted pair conductors, coaxial conductors, optical fibres, wireless communication etc", The MAC layer is connected to the physical layer, which is used for communication. & fig. 1,

elements 26 & 28, paragraph 0166, “The external communication is illustrated as inward and outward facing arrows 26 and 28 from each device 14, 16, 18 and 20”, The external communications are for the user side.]; and

a space-division cross module, connected with the transmitting/receiving modules and the MAC layer, and is used for performing a space-division cross operation upon the Ethernet service signals [Tagore-Brage, paragraph 0004, “The space division switch allows the designer of the switch to reduce the number of total cross-points required in implementing a crossbar matrix switch. However, the head of line blocking may be further increased since more cross-points will be shared”, Each switch has a space-division cross switch.];

wherein, the MAC layer is used for duplicating the Ethernet service signals from the space-division cross module into two copies, wherein one copy is transmitted to a local station while the other copy is returned to the transmission channel of the WDM network through the space-division cross module and transmitting/receiving module [Tagore-Brage, paragraph 0024, “determine, at least substantially simultaneously in each device having received at least part of a data packet, on the basis of the pertaining receiving device information, whether the at least part of the data packet is intended for the device and, if so, storing a copy of the at least part of the data packet in the device”, A copy of the packet is stored locally at the device.].

9. **As per claim 16,** Tagore-Brage et al. teach the device according to claim 15, wherein, the MAC layer is further used for selecting service signals that belong to the present station to receive according to MAC layer labels in the Ethernet service signals,

and discarding other service signals from the space-division cross module which do not belong to the present station [Tagore-Brage, Paragraph 0162, “The LU-engine comprises a table or other data storage mapping external receiver addresses (such as MAC addresses or IP addresses) to internal receiving device identities--the devices via which the data packet may, in fact, reach its destination”, A table of MAC addresses stores the units (or services) that are allowed to communicate.].

10. **As per claim 18,** Tagore-Brage et al. teach a device for processing Ethernet service signals in a Wavelength Division Multiplexing (WDM) network, comprising:

a transmitting/receiving module, which connects to transmission channels in the WDM network [Tagore-Brage, paragraph 0032, “Normally, the data will conform to a standard, such as the Ethernet standard”, Each switch operates using the Ethernet protocol.];

a local service processing part that connects the a user side [Tagore-Brage, fig. 1, elements 26 & 28, paragraph 0166, “The external communication is illustrated as inward and outward facing arrows 26 and 28 from each device 14, 16, 18 and 20”, The external communications are for the user side.]; and

a space-division cross module, connected with the transmitting/receiving module and the network identifier module, and is used for performing a space-division cross operation upon the Ethernet service signals [Tagore-Brage, paragraph 0004, “The space division switch allows the designer of the switch to reduce the number of total cross-points required in implementing a crossbar matrix switch. However, the head of

line blocking may be further increased since more cross-points will be shared", Each switch has a space-division cross switch.];

a network identifier module, which is used for duplicating the Ethernet service signals into two copies, removing the identifier of one copy and sending the signals to the local service processing part, and returning the other copy to the transmission channel of the WDM network through the space-division cross module and transmitting/receiving modules for continuous transmission [Tagore-Brage, paragraph 0024, "determine, at least substantially simultaneously in each device having received at least part of a data packet, on the basis of the pertaining receiving device information, whether the at least part of the data packet is intended for the device and, if so, storing a copy of the at least part of the data packet in the device", A copy of the packet is stored locally at the device.].

11. **As per claim 20,** Tagore-Brage et al. teach the device according to claim 18, wherein, the local service processing part comprises a MAC layer and a physical layer, wherein,

the MAC layer receives the Ethernet service signals from the network identifier module, selects the services that belong to the present station to receive according to MAC layer labels in the Ethernet service signals and discarding other services [Tagore-Brage, Paragraph 0162, "The LU-engine comprises a table or other data storage mapping external receiver addresses (such as MAC addresses or IP addresses) to internal receiving device identities--the devices via which the data packet may, in fact,

reach its destination", A table of MAC addresses stores the units (or services) that are allowed to communicate.].

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claims 1-7, 14, 17, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tagore-Brage et al. (US PG Pub 2002/0075886) in view of Chapman et al. (2003/0103450).

14. **As per claim 1,** Tagore-Brage et al. teach a method for transmitting Ethernet service signals in a Wavelength Division Multiplexing (WDM) network, comprising… a receiving station receiving the Ethernet service signals [Tagore-Brage, paragraph 0032, "Normally, the data will conform to a standard, such as the Ethernet standard", Each switch operates using the Ethernet protocol.] from the transmitting channel, performing a space-division cross operation upon the received signals and duplicating the signals into two copies [Tagore-Brage, paragraph 0004, "The space division switch allows the designer of the switch to reduce the number of total cross-points required in implementing a crossbar matrix switch. However, the head of line blocking may be further increased since more cross-points will be shared", Each switch has a space-division cross switch.], wherein one copy is locally downloaded and the other copy is returned to the transmission channel for continuous transmission [Tagore-Brage,

paragraph 0024, “determine, at least substantially simultaneously in each device having received at least part of a data packet, on the basis of the pertaining receiving device information, whether the at least part of the data packet is intended for the device and, if so, storing a copy of the at least part of the data packet in the device”, A copy of the packet is stored locally at the device.].

Tagore-Brage et al. do not teach a Center Server (CS) receiving the Ethernet service signals and transmitting the signals to a transmission channel for transmission.

However, Chapman et al. teach a Center Server (CS) receiving the Ethernet service signals and transmitting the signals to a transmission channel for transmission [Chapman, paragraphs 0092 & 0093, “The controller may consist in a single central controller for the entire switch or, alternatively, may consist in a distributed control system with local controllers for each input port and, possibly, a separate fabric controller for the switch fabric. The input/output torts interconnect the switch to users, other switches and other network elements. Data units, such as IP data packets, received as inputs are defined as ingress, while data units transmitted as outputs are defined as egress. The switch controller, either a central or distributed system, provides for the packet forwarding control, as well as the internal management of the switch, specifically the traffic scheduling and coordination within the switch fabric”, The central server (or switch) operates within a distributed system.];

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings of Chapman et al. into Tagore-Brage et al., since Tagore-Brage suggest a space-division cross switch within a distributed

network, and Chapman et al. suggest a central IP switch such as to provide space-division multiplexing within a distributed network [Chapman, paragraphs 0092-0094] in the analogous art of space-division switching.

15. **As per claim 2,** Tagore-Brage et al. in view of Chapman et al. teach the method according to claim 1. Tagore-Brage et al. also teach wherein…each receiving station receives the Ethernet service signals from any direction of the transmission channel or from both directions of the transmission channel simultaneously [Tagore-Brage, paragraph 0037, “the interconnecting means and transporting means comprise a plurality of parallel connections between the devices, such as where a first number of the parallel connections are adapted to transport the at least part of the data packets between the devices and where a second number of the parallel connections are adapted to transport the pertaining receiving device information between the devices”, Parallel connections imply bi-directional transmission.].

Tagore-Brage et al. do not teach the CS transmits the Ethernet service signals in any direction of the transmission channel or in both directions of the transmission channel simultaneously.

However, Chapman et al. teach the CS transmits the Ethernet service signals in any direction of the transmission channel or in both directions of the transmission channel simultaneously [Chapman, paragraphs 0092 & 0093, “The controller may consist in a single central controller for the entire switch or, alternatively, may consist in a distributed control system with local controllers for each input port and, possibly, a separate fabric controller for the switch fabric. The input/output torts interconnect the

switch to users, other switches and other network elements. Data units, such as IP data packets, received as inputs are defined as ingress, while data units transmitted as outputs are defined as egress. The switch controller, either a central or distributed system, provides for the packet forwarding control, as well as the internal management of the switch, specifically the traffic scheduling and coordination within the switch fabric", The central server (or switch) operates within a distributed system.].

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings of Chapman et al. into Tagore-Brage et al., since Tagore-Brage suggest a space-division cross switch within a distributed network, and Chapman et al. suggest a central IP switch such as to provide space-division multiplexing within a distributed network [Chapman, paragraphs 0092-0094] in the analogous art of space-division switching.

16. **As per claim 3,** Tagore-Brage et al. in view of Chapman et al. teach the method according to claim 2. Tagore-Brage et al. also teach further comprising:

each station implementing a protection switch by switching the directions of receiving and transmitting the Ethernet service signals [Tagore-Brage, Paragraph 0162, "The LU-engine comprises a table or other data storage mapping external receiver addresses (such as MAC addresses or IP addresses) to internal receiving device identities--the devices via which the data packet may, in fact, reach its destination", A table of MAC addresses stores the units (or services) that are allowed to communicate.].

17. **As per claim 4,** Tagore-Brage et al. in view of Chapman et al. teach the method according to claim 1. Tagore-Brage et al. also teach wherein, the step of duplicating is implemented by a space-division cross module [Tagore-Brage, paragraphs 0014 & 0024, "In a first aspect, the invention relates to a switching unit for switching a data packet, the switching unit comprising:… determine, at least substantially simultaneously in each device having received at least part of a data packet, on the basis of the pertaining receiving device information, whether the at least part of the data packet is intended for the device and, if so, storing a copy of the at least part of the data packet in the device", A copy of the packet is stored locally at the device.].

18. **As per claim 5,** Tagore-Brage et al. in view of Chapman et al. teach the method according to claim 1. Tagore-Brage et al. also teach wherein, the duplication is implemented by a Media Access Control (MAC) layer according to a MAC layer label and the a pre-configured forwarding table [Tagore-Brage, Paragraph 0162, "The LU-engine comprises a table or other data storage mapping external receiver addresses (such as MAC addresses or IP addresses) to internal receiving device identities--the devices via which the data packet may, in fact, reach its destination", A table of MAC addresses stores the units (or services) that are allowed to communicate.], or the step of duplicating is implemented by a network identifier module according to a self-defined identifier added to the Ethernet service signals and the pre-configured forwarding table.

19. **As per claim 6,** Tagore-Brage et al. in view of Chapman et al. teach the method according to claim 1. Tagore-Brage et al. also teach further comprising…determining that the Ethernet service signals carry different MAC layer labels respectively; informing

the receiving station of the MAC layer labels carried in each Ethernet service signal; and transmitting the multiple Ethernet service signals to the transmission channel [Tagore-Brage, fig. 1, element 16, paragraph 0161, “The switching unit 10 comprises a crossbar 12 directing the data packets 11 received at any of the connected devices 14, 16, 18 or 20 to any or all of the connected devices 14, 16, 18 or 20; a lookup engine 22 (LU-engine) determining which of the devices 14, 16, 18 and/or 20 should receive the data packet 11; and an arbiter 24 determining from control information received from the LU-engine which of the devices 14, 16, 18 and/or 20 are to transmit and receive data packets 11 on the crossbar 12”, The LU-engine works using MAC and IP addresses and handles their transmission and reception from the channel.]; and

the receiving stations receiving the multiple Ethernet service signals, selecting the signals belonging to the present station from the locally downloaded multiple Ethernet service signals to receive and discarding signals not belonging to the present station according to the MAC layer labels [Tagore-Brage, Paragraph 0162, “The LU-engine comprises a table or other data storage mapping external receiver addresses (such as MAC addresses or IP addresses) to internal receiving device identities--the devices via which the data packet may, in fact, reach its destination”, A table of MAC addresses stores the units (or services) that are allowed to communicate.].

Tagore-Brage et al. do not teach when the CS receives multiple Ethernet service signals at the same time. However, Chapman et al. teach when the CS receives multiple Ethernet service signals at the same time [Chapman, paragraphs 0092 & 0093, “The controller may consist in a single central controller for the entire switch or,

alternatively, may consist in a distributed control system with local controllers for each input port and, possibly, a separate fabric controller for the switch fabric. The input/output torts interconnect the switch to users, other switches and other network elements. Data units, such as IP data packets, received as inputs are defined as ingress, while data units transmitted as outputs are defined as egress. The switch controller, either a central or distributed system, provides for the packet forwarding control, as well as the internal management of the switch, specifically the traffic scheduling and coordination within the switch fabric", The central server (or switch) operates within a distributed system.].

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings of Chapman et al. into Tagore-Brage et al., since Tagore-Brage suggest a space-division cross switch within a distributed network, and Chapman et al. suggest a central IP switch such as to provide space-division multiplexing within a distributed network [Chapman, paragraphs 0092-0094] in the analogous art of space-division switching.

20. **As per claim 7,** Tagore-Brage et al. in view of Chapman et al. teach the method according to claim 2. Tagore-Brage et al. teach further comprising… determining that the Ethernet service signals carry different MAC layer labels respectively; informing the receiving station of the MAC layer labels carried in each Ethernet service signal; and transmitting the multiple Ethernet service signals to the transmission channel for transmission [Tagore-Brage, fig. 1, element 16, paragraph 0161, "The switching unit 10 comprises a crossbar 12 directing the data packets 11 received at any of the connected

devices 14, 16, 18 or 20 to any or all of the connected devices 14, 16, 18 or 20; a lookup engine 22 (LU-engine) determining which of the devices 14, 16, 18 and/or 20 should receive the data packet 11; and an arbiter 24 determining from control information received from the LU-engine which of the devices 14, 16, 18 and/or 20 are to transmit and receive data packets 11 on the crossbar 12", The LU-engine works using MAC and IP addresses and handles their transmission and reception from the channel.]; and

the receiving stations receiving the multiple Ethernet service signals, selecting the signals belonging to the present station from the locally downloaded multiple Ethernet service signals to receive and discarding signals not belonging to the present station according to the MAC layer labels [Tagore-Brage, Paragraph 0162, "The LU-engine comprises a table or other data storage mapping external receiver addresses (such as MAC addresses or IP addresses) to internal receiving device identities--the devices via which the data packet may, in fact, reach its destination", A table of MAC addresses stores the units (or services) that are allowed to communicate.].

Tagore-Brage et al. do not teach when the CS receives multiple Ethernet service signals at the same time. However, Chapman et al. teach when the CS receives multiple Ethernet service signals at the same time [Chapman, paragraphs 0092 & 0093, "The controller may consist in a single central controller for the entire switch or, alternatively, may consist in a distributed control system with local controllers for each input port and, possibly, a separate fabric controller for the switch fabric. The input/output torts interconnect the switch to users, other switches and other network

elements. Data units, such as IP data packets, received as inputs are defined as ingress, while data units transmitted as outputs are defined as egress. The switch controller, either a central or distributed system, provides for the packet forwarding control, as well as the internal management of the switch, specifically the traffic scheduling and coordination within the switch fabric", The central server (or switch) operates within a distributed system.].

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings of Chapman et al. into Tagore-Brage et al., since Tagore-Brage suggest a space-division cross switch within a distributed network, and Chapman et al. suggest a central IP switch such as to provide space-division multiplexing within a distributed network [Chapman, paragraphs 0092-0094] in the analogous art of space-division switching.

21. **As per claim 14,** Tagore-Brage et al. teach the device according to claim 11. Tagore-Brage et al. do not teach further comprising: an Ethernet service signal encapsulation module and a mapping/framing module, which connect to the cross module and the transmitting/receiving modules.

However, Chapman et al. teach an Ethernet service signal encapsulation module and a mapping/framing module, which connect to the cross module and the transmitting/receiving modules [Chapman, paragraph 0122, "if interface 202 forwards an IP data packet to the interface 204, the IP data packet is encapsulated in a data block frame and the data block transmitted to the interface 204. The encapsulation process consists of appending at the interface 202 to the IP data packet the necessary

information fields, such as the source and destination address fields", Encapsulation occurs at the cross-switch.].

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings of Chapman et al. into Tagore-Brage et al., since Tagore-Brage suggest a space-division cross switch within a distributed network, and Chapman et al. suggest a switch such as to provide IP encapsulation within a distributed network [Chapman, paragraph 0122] in the analogous art of space-division switching.

22. **As per claim 17,** Tagore-Brage et al. teach the device according to claim 15. Tagore-Brage et al. do not teach further comprising: an Ethernet service signals encapsulation module, a happing/framing module, which connect the cross module and the transmitting/receiving module

However, Chapman et al. teach an Ethernet service signals encapsulation module, a happing/framing module, which connect the cross module and the transmitting/receiving module [Chapman, paragraph 0122, "if interface 202 forwards an IP data packet to the interface 204, the IP data packet is encapsulated in a data block frame and the data block transmitted to the interface 204. The encapsulation process consists of appending at the interface 202 to the IP data packet the necessary information fields, such as the source and destination address fields", Encapsulation occurs at the cross-switch.].

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings of Chapman et al. into Tagore-Brage et

al., since Tagore-Brage suggest a space-division cross switch within a distributed network, and Chapman et al. suggest a switch such as to provide IP encapsulation within a distributed network [Chapman, paragraph 0122] in the analogous art of space-division switching.

23. **As per claim 21,** Tagore-Brage et al. teach the device according to claim 18. Tagore-Brage et al. do not teach further comprising:

However, Chapman et al. teach an Ethernet service signal encapsulation module, and a mapping/framing module, which connects the cross module and the transmitting/receiving modules [Chapman, paragraph 0122, "if interface 202 forwards an IP data packet to the interface 204, the IP data packet is encapsulated in a data block frame and the data block transmitted to the interface 204. The encapsulation process consists of appending at the interface 202 to the IP data packet the necessary information fields, such as the source and destination address fields", Encapsulation occurs at the cross-switch.].

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings of Chapman et al. into Tagore-Brage et al., since Tagore-Brage suggest a space-division cross switch within a distributed network, and Chapman et al. suggest a switch such as to provide IP encapsulation within a distributed network [Chapman, paragraph 0122] in the analogous art of space-division switching.

24. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tagore-Brage et al. (US PG Pub 2002/0075886) in view of Chapman et al. (2003/0103450) and Suemura (US PG Pub 2003/0145246).

25. **As per claim 8,** Tagore-Bare et al. in view of Chapman et al. teach the method according to claim 6. Tagore-Bare et al. do not teach wherein: the MAC layer label is a Virtual Local Area Network (VLAN) label, or a Multiple-Protocol Label Switching (MPLS) label or a Resilient Packet Ring (RPR) label.

However, Suemura teaches wherein: the MAC layer label is a Virtual Local Area Network (VLAN) label, or a Multiple-Protocol Label Switching (MPLS) label or a Resilient Packet Ring (RPR) label [Suemura, paragraphs 0007 & 0049, "the recent tendency is toward integrating the control plane of MPLS (multi-protocol label switching) technology with SDH/SONET transport networks" & "As illustrated in FIG. 1 as a representative node, the node B includes a cross-connect switch 2 which may be a combination of one or more time division switching stages and one or more space division switching stages", The space-division switch works in a MPLS network.].

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings of Suemura into Tagore-Brage et al., since Tagore-Brage suggest a space-division cross switch within a distributed network, and Suemura suggests the beneficial use of a space division switch such as to perform MPLS transmission [Suemura, paragraphs 0007 & 0049] in the analogous art of space-division switching.

26. **As per claim 9,** Tagore-Brage et al. in view of Chapman et al. teach the method according to claim 1. Tagore-Bare et al. do not teach further comprising: when the CS receives multiple Ethernet service signals at the same time, the CS adding an identifier of the station that receives the service signals into each Ethernet service signal; correspondingly informing each receiving station of the identifier; and transmitting the multiple Ethernet service signals to the transmission channel for transmission; the receiving station receiving the multiple Ethernet service signals, selecting the signals belonging to the present station from the locally downloaded multiple Ethernet service signals to receive and discarding the signals not belonging to the present station according to the identifier information; and peeling the identifier information from the signals of the present station.

However, Suemura teaches when the CS receives multiple Ethernet service signals at the same time, the CS adding an identifier of the station that receives the service signals into each Ethernet service signal; correspondingly informing each receiving station of the identifier; and transmitting the multiple Ethernet service signals to the transmission channel for transmission [Suemura, paragraphs 0007 & 0049, "the recent tendency is toward integrating the control plane of MPLS (multi-protocol label switching) technology with SDH/SONET transport networks" & "As illustrated in FIG. 1 as a representative node, the node B includes a cross-connect switch 2 which may be a combination of one or more time division switching stages and one or more space division switching stages", The space-division switch works in a MPLS network.];

the receiving station receiving the multiple Ethernet service signals, selecting the signals belonging to the present station from the locally downloaded multiple Ethernet service signals to receive and discarding the signals not belonging to the present station according to the identifier information; and peeling the identifier information from the signals of the present station [Suemura, paragraph 0060, "Each path table entry, which is identified by a path ID field 21, is divided into fields 22 through 33 for setting the values of a virtual link interface ID, bandwidth, upstream node ID, upstream interface ID, upstream label, downstream node ID, downstream interface ID, downstream label, path recovery type, activity (active or inactive), accommodated path and tunnel ID (which is only used for distributed network). As will be described later, the attribute data of the path table 7 are used for setting the switch table 8 with data necessary for the controller 5 to perform switching on the incoming SDH signals transported on a WDM channel", Identifiers (or labels) are placed on or peeled off in accordance with either transmission or reception, respectively.].

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings of Suemura into Tagore-Brage et al., since Tagore-Brage suggest a space-division cross switch within a distributed network, and Suemura suggests the beneficial use of a space division switch such as to perform MPLS transmission [Suemura, paragraphs 0007, 0049 & 0060] in the analogous art of space-division switching.

27. **As per claim 10,** Tagore-Brage et al. in view of Chapman et al. teach the method according to claim 2. Tagore-Bare et al. do not teach further comprising: when the CS receives multiple Ethernet service signals at the same time:

the CS adding the identifier of the station that receives the service signals into each Ethernet service signal; correspondingly informing each receiving station of the identifier; and transmitting the multiple Ethernet service signals to the transmission channel for transmission; the receiving station receiving the multiple Ethernet service signals, selecting the signals belonging to the present station from the locally downloaded multiple Ethernet service signals to receive and discarding the signals not belonging to the present station according to the identifier information; and peeling the identifier information from the signals of the present station.

However, Suemura teaches when the CS receives multiple Ethernet service signals at the same time:

the CS adding the identifier of the station that receives the service signals into each Ethernet service signal; correspondingly informing each receiving station of the identifier; and transmitting the multiple Ethernet service signals to the transmission channel for transmission [Suemura, paragraphs 0007 & 0049, "the recent tendency is toward integrating the control plane of MPLS (multi-protocol label switching) technology with SDH/SONET transport networks" & "As illustrated in FIG. 1 as a representative node, the node B includes a cross-connect switch 2 which may be a combination of one or more time division switching stages and one or more space division switching stages", The space-division switch works in a MPLS network.];

the receiving station receiving the multiple Ethernet service signals, selecting the signals belonging to the present station from the locally downloaded multiple Ethernet service signals to receive and discarding the signals not belonging to the present station according to the identifier information; and peeling the identifier information from the signals of the present station [Suemura, paragraph 0060, "Each path table entry, which is identified by a path ID field 21, is divided into fields 22 through 33 for setting the values of a virtual link interface ID, bandwidth, upstream node ID, upstream interface ID, upstream label, downstream node ID, downstream interface ID, downstream label, path recovery type, activity (active or inactive), accommodated path and tunnel ID (which is only used for distributed network). As will be described later, the attribute data of the path table 7 are used for setting the switch table 8 with data necessary for the controller 5 to perform switching on the incoming SDH signals transported on a WDM channel", Identifiers (or labels) are placed on or peeled off in accordance with either transmission or reception, respectively.].

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings of Suremura into Tagore-Brage et al., since Tagore-Brage suggest a space-division cross switch within a distributed network, and Suemura suggests the beneficial use of a space division switch such as to perform MPLS transmission [Suemura, paragraphs 0007, 0049 & 0060] in the analogous art of space-division switching.

28. Claims 13 & 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tagore-Brage et al. (US PG Pub 2002/0075886) in view of Suemura (US PG Pub 2003/0145246).

29. **As per claim 13,** Tagore-Brage et al. in view of Chapman et al. teach the device according to claim 11. Tagore-Bare et al. do not teach further comprising: a network identifier module, connected with the space-division cross module and the local service processing part, and is used for adding identifiers to the Ethernet service signals, selecting services that belong to the present station to receive according to the added identifiers, and peeling identifier information of the Ethernet service signals that belong to the present station.

However, Suemura teaches a network identifier module, connected with the space-division cross module and the local service processing part, and is used for adding identifiers to the Ethernet service signals, selecting services that belong to the present station to receive according to the added identifiers, and peeling identifier information of the Ethernet service signals that belong to the present station [Suemura, paragraph 0060, "Each path table entry, which is identified by a path ID field 21, is divided into fields 22 through 33 for setting the values of a virtual link interface ID, bandwidth, upstream node ID, upstream interface ID, upstream label, downstream node ID, downstream interface ID, downstream label, path recovery type, activity (active or inactive), accommodated path and tunnel ID (which is only used for distributed network). As will be described later, the attribute data of the path table 7 are used for setting the switch table 8 with data necessary for the controller 5 to perform switching

on the incoming SDH signals transported on a WDM channel", Identifiers (or labels) are placed on or peeled off in accordance with either transmission or reception, respectively.].

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings of Suremura into Tagore-Brage et al., since Tagore-Brage suggest a space-division cross switch within a distributed network, and Suemura suggests the beneficial use of a space division switch such as to perform MPLS transmission [Suemura, paragraphs 0007, 0049 & 0060] in the analogous art of space-division switching.

30. **As per claim 19,** Tagore-Brage et al. in view of Chapman et al. teach the device according to claim 18. Tagore-Bare et al. do not teach wherein, the network identifier module is further used for selecting services that belong to the present station according to self-defined identifiers of the service signals, peeling the identifiers and transmitting the signals to the local service processing part.

However, Suemura teaches wherein, the network identifier module is further used for selecting services that belong to the present station according to self-defined identifiers of the service signals, peeling the identifiers and transmitting the signals to the local service processing part [Suemura, paragraph 0060, "Each path table entry, which is identified by a path ID field 21, is divided into fields 22 through 33 for setting the values of a virtual link interface ID, bandwidth, upstream node ID, upstream interface ID, upstream label, downstream node ID, downstream interface ID, downstream label, path recovery type, activity (active or inactive), accommodated path

and tunnel ID (which is only used for distributed network). As will be described later, the attribute data of the path table 7 are used for setting the switch table 8 with data necessary for the controller 5 to perform switching on the incoming SDH signals transported on a WDM channel", Identifiers (or labels) are placed on or peeled off in accordance with either transmission or reception, respectively.].

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings of Suremura into Tagore-Brage et al., since Tagore-Brage suggest a space-division cross switch within a distributed network, and Suemura suggests the beneficial use of a space division switch such as to perform MPLS transmission [Suemura, paragraphs 0007, 0049 & 0060] in the analogous art of space-division switching.

Conclusion

31. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

32. **The Examiner has cited particular columns and line numbers or paragraphs in the references applied to the claims above for the convenience of the applicant.** Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in their entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

In the case of amending the claimed invention, the Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

33. **If the Applicant is of the opinion that an interview would help advance prosecution in this case, they are welcome to call the Examiner, Paul Masur, at the number listed below to schedule an interview.** The Examiner prefers interview requests be accompanied with a detailed agenda via fax. The Examiner's fax number is (571) 270-8297. The Examiner is willing to consider proposed amendments, clarify rejections, and discuss any other issues that are presented by the Applicant. Please note that the Examiner may not be able to accommodate all requests due to scheduling constraints. It is recommended that interview requests be sent with ample time to schedule an interview.

34. **Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Masur whose telephone number is (571) 270-7297.** The examiner can normally be reached on Monday through Friday from 7:00AM to 4:30PM (Eastern Time).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ricky Ngo/
Supervisory Patent Examiner, Art Unit 2464

/P. M./
Examiner, Art Unit 2464